PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: :

Hiroshi SASAKI : Group Art Unit: 1796

Appln. No.: 10/530,885 : Examiner: FEELY, MICHAEL J

Filed: April 11, 2005 :

For: METAL OXIDE TINE PARTICLE-CONTAINING CATIONIC POLYMERIZATION TYPE COMPOSITION

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents
Alexandria, VA 22313-1450

Sir:

I, Nobuaki KOIKE, hereby declare and state as follows:

I am a citizen of Japan.

I graduated from Hokkaido University, Graduate School of Pharmaceutical Sciences in March, 1992.

Since March 1992 I have been employed by KYOWA HAKKO KOGYO CO., LTD. and since 1997 I have been employed by TOAGOSEI CO., LTD. and have been assigned to Tsukuba Research Laboratory; since May 2001 assigned to Macromolecular Material Research Laboratory; since April 2005 assigned to Functional Materials Laboratory; and since April 2007 assigned to Functional Materials Laboratory.

The following experimentation was conducted by me or under my supervisory.

1) Object

To prove that, in the invention mentioned in U. S. Application No. 10/530,885 (hereinafter, it will be referred to as the present application), a composition containing 30 to 70 parts by weight of the component (A) to 100 parts by weight of a mixture of the components (A) and (B) in the currently amended claim 1 achieves an excellent effect as compared with a composition containing the component (A) in a compounding amount which is outside the above-mentioned range.

Hereinafter, "part(s) by weight" will be just mentioned as "part(s)".

2) Experimental Method

[Examples 4 and 5 and Comparative Examples 3 and 4]

Compositions were prepared by the same method as in Example 1 of the specification of the present application except that the amount of the component (A) and that of the component (B) used in Example 1 of the specification of the present application were changed to the amounts shown in the following Table 1 and the resulting compositions were cured (from the final line, page 31 to line 11, page 33 of the specification of the present application.)

The test products after the curing were used and evaluated for the curling of film (lines 6 to 11, page 34 of the specification of the present application) and for scratching resistance (lines 12 to 18, page 34 of the specification) of the present application) according to the same methods as in Example 1 of the specification of the present application.

3) Experimental Results

The results obtained in the above 2) are shown in the following Table 1.

In Table 1, the data of Example 1 are also mentioned for reference.

Table 1

			Example 4	Example 5	Comp Ex 3	Comp Ex 4	Example 1
Composition	(A)	OXT-211	22.4 (32.0)	47.6 (68.0)	5.6 (8.0)	57.4 (82.0)	35 (50.0)
	(B)	BADGE	47.6	22.4	64.4	12.6	35
	(C)	SP-170	1.4	1.4	1.4	1.4	1.4
	(D)	MEK-ST	100	100	100	100	100
	Others	Methyl Ethyl Ketone	80	80	80	80	80
	Amount of Metal Oxide Fine Particles (wt %)		45	45	45	45	45
Evaluation	Presence or absence of Curling		o	o	Δ	o	o
	Scratching Resistance		o	o	o	×	o

(1) Meanings of the abbreviations in Table 1 are as follows.
. OXT-211: 3-Ethyl-3-(phenoxymethyl)oxetane [(trade name) OXT-211, manufactured by Toagosei Co., Ltd.]
. BADGE: Bisphenol A diglycidyl ether [(trade name) Epicoat 828, manufactured by Japan Epoxy Resin Co., Ltd.]
. SP-170: Triarylsulfonium hexafluorophosphate [(trade name) Adeka Optomer SP-170, manufactured by Adeka] (Incidentally, in the specification, it was mentioned as "tetraallylsulfonium hexafluorophosphate" but that was erroneous and the above is the correct name.)
. MEK-ST: Colloidal silica dispersed in methyl ethyl ketone [(trade name) MEK-ST, manufactured by Nissan Chemical Industries, solid = 30% by weight, organic solvent = methyl ethyl ketone, particle size of silica = approxi. 10 to 20 nm]
(2) Numerals in Table 1 are in part(s). Numerals in the parentheses for the component (A) are the rate of part(s) of the component (A) to 100 parts of a mixture of the component (A) and the component (B).

4) Discussions

From the results of the above Table 1, it is apparent to be as follows.

Firstly, in all of the ranges stipulated by claim 1 that the amount of the component (A) is 30 to 70 parts to 100 parts of a mixture of the components (A) and (B) [the amounts of the component (A) is 32.0 parts, 68.0 parts and 50.0 parts in Examples 3, 4 and 1, respectively], the composition of the invention of the present application in its cured product has no curling and is with an excellent scratching resistance. In addition, it is apparent from the results of Table 1 of the specification

of the present application (page 36 of the specification of the present application) that the compositions of the invention of the present application which are other than the above-mentioned ones also have an excellent scratching resistance while the cured products thereof have no curl.

On the contrary, in the composition of Comparative Example 3 where the amount of the component (A) is 8.0 parts which is less than the lower limit (30 parts) of the invention of the present application, although a scratching resistance was excellent, curling was generated. On the other hand, in the composition of Comparative Example 4 where the amount of the component (A) is 82.0 parts which is more than the upper limit (70 parts) of the invention of the present application, although no curling was generated, many injuries were noted in a scratching resistance test.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectively submitted,

Date: June 2, 2008

Nobuaki Koike

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